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ABSTRACT

The Department of Educational Foundations at Western Illinois University developed a model preservice curriculum to respond to the problem of preparing teachers who can influence their environment rather than be victims of it and who can effectively transmit that message to students. Entitled Empowerment through Cognitive and Social Management (ECOSOM), the program employs a cognitive frame-of-reference construct which involves the ability to monitor, regulate, evaluate, and modify the learning process. The core of the ECOSOM paradigm is the self-regulated learning model postulated by Reinhard Lindner and Bruce Harris (1992) consisting of epistemological beliefs, motivation, metacognition, learning strategies, contextual sensitivity, and environmental utilization/control. Project ECOSOM is based on the belief that the self-regulated learning perspective in combination with an apprenticeship orientation makes for a potent approach to training future teachers. Project ECOSOM responds to the need for reflective practitioners who value critical thinking and self-regulated learning as "habits of mind" and commitment to the ideals of reflective thinking, assessment, and learning as an ongoing, life-long process. The curriculum relies upon course work, workshops, technological instruction, and participant action research experiences. Charts outlining dimensions of self-regulated learning and characteristics of self-regulated learners are appended. (Contains approximately 50 references.) (JDD)

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INTASC'S MODEL STANDARDS FOR BEGINNING TEACHER LICENSING AND DEVELOPMENT: ONE MODEL FOR TEACHER PREPARATION PROGRAMMING

by

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INTASC's Model Standards for Beginning Teacher Licensing and Development: One model for Teacher Preparation Programming.

Dr. Georg W. Gunzenhauser, Dr. Reinhard Lindner, Dr. Bruce Harris, Dr. Joseph Kersting[*]

> The problems confronting American schools are substantial; the resources available to them are in most instances severely limited; the stakes are high, and it is by no means preordained that all will go well for many of them in the end.
>
> Preface to issue on American Schools:
> Public and Private
> **Daedalus** (Summer, 1981), p. v.

Presentation Intent

This presentation will focus on: (1) identifying the need for teacher preparation curricular change, (2) identifying one model of such curricular change, and (3) identifying preliminary implementation effort activities.

Background

Goodlad (1984), in his treatise entitled **A Place Called School,** suggested that the nature of the public educational process will, in future years, differ markedly in terms of its relationship to families and communities. This central theme is not new, having at various times been extolled by researchers dating back to the early 1960s (Dave, 1963; Wolf, 1964; Walker, 1976; Brofenbrenner, 1974; Zigler et al, 1992).

In the recent past, researchers focusing on this triad of school, family and community have begun to focus on specific components attributable to school success. These components have included the concepts of resiliency (Werner and Smith, 1982), self-regulated learning (Zimmerman, 1989; Lindner and Harris, 1992), critical thinking (Ennis, 1989), and meta-cognitive reflection (Brown and Palincsar, 1989), as well as the subsuming components of epistemological beliefs (Schommer, 1991), learning strategies (Derry, 1989), motivation (Dweck, 1989; Bandura, 1982), and contextual sensitivity (Lindner, 1992).

While the majority of these research efforts have focused on enhancing the academic success of learners, they have failed, to some degree, to take into account the potential contributions of the teacher. Too frequently, these researchers have begun with the assumption that knowledge equates to competence and the ability to effectively communicate. By depending on such assumptions, research has failed to take into account a critical component of academic success in public schools -- the classroom teacher.

Teachers who themselves are self-regulated learners, critical thinkers, metacognitive reflecters, empowered and resilient, can play a crucial role in promoting the development of similar characteristics in their students.

Traditionally, teacher preparation programming has focused on providing tools designed to instill/enhance student learning. The frequent outcome of such preparation is the production of teachers who "talk at their students", in school settings that simply offer education. Recently, however, teacher preparation programs and states and federal educational agencies have begun to reexamine this somewhat antiquated approach to teacher preparation.

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INTASC Standards

For instance, in an effort to move toward "interactive learning" , the Interstate New Teacher Assessment and Support Consortium (INTASC) , a program of the Council of Chief State School officials, publicized a set of ten model standards -- Model Standards for Beginning Teacher Licensing and Development: A Resource for State Dialogue (Draft, September, 1992). These standards include a focus on: (1) basic knowledge of the discipline; (2) the ability to effectively communicate discipline-related knowledge; (3) an understanding of learner needs from social, emotional, and cognitive perspectives; (4) an understanding of the need for critical thinking, problem solving, and performance enhancement in relation to life-long learning; (5) an understanding of individual and group (self-)motivation, social interaction, and active participation in the learning process; (6) an understanding of student, community, and curricular goals; (7) the use of formal and informal assessment strategies (both traditional and nontraditional); (8) the need for self-actualization on the part of the teacher; and (9) the use and reliance on the greater community to effect student actualization. While several of the standards address select components of the ECOSOM project, Standard 9 comes closest to fitting the overall project intent. This standard specifically speaks to the need for a reflective practitioner who values critical thinking and self-regulated learning as "habits of mind". The standard further stipulates that such individuals should be committed to the ideals of reflective thinking, assessment, and learning as an ongoing, life-long process.

Application of INTASC Standards

A number of colleges and universities have already made programmatic changes which coincide with these model standards. Michigan State, for instance, has developed an approach to teaching social studies by utilizing a high school classroom environment and using high school teachers as instructional partners. The University of Wisconsin--Madison, in an effort to better serve at-risk populations, is working towards emphasizing pre-service competence by physically moving the teacher preparation course work from the college campus into the diverse public school environment.

States have also been involved in this educational reform process. Minnesota has proposed a professional certification/licensure system which includes: (a) a knowledge-based competency exam at the end of a teacher preparation program, (b) a one-year supervised internship in a professional development school, and (c) licensure-specific examinations of teaching skill at the conclusion of the internship period (1992). Project Success, a pilot program funded by the Lt. Governor's Office in the state of Illinois, was developed to promote the placement of and collaborative interaction between social service agencies within the public school environment (Hall and Castrale, 1993). Voices for Illinois Children is concerned with the plight and needs of at-risk children. Letters of support from both Illinois initiatives are found in Appendix C of this proposal. Schools of the Future, in the state of Texas, was developed to involve the community in local elementary schools with the specific aim of assisting in the development of resiliency in the impacted student population. Several researchers have specifically identified a concern for the problem-solving and reflective thinking skills of high school graduates (Resnick, 1987; Jones, 1990; and Shanker, 1988). In an attempt to address this concern, a number of reforms have emerged. The University of Massachusetts, Carnegie Mellon University and Sonoma State University have, for instance, developed a number of critical and creative thinking courses/programs (Academic Leader, 1993). David Martin (1989), in examining the spectrum of such reforms, noted that K-12 public schools have indicated a general receptiveness to an understanding of the cognitive aspects of teaching and the explicit need for the teaching of higher-order critical thinking skills. He found, however, that teacher preparation programs have, on the whole, not yet come to such an understanding. This conclusion was verified by Hawley (1990), who argued:

Proposals for reforming teacher education abound but typically lack content (see Holmes Group, 1986, and Carnegie Forum, 1986). That is, they focus on requirements for prospective teachers and the process of teacher education largely in terms of the number of courses taken and the mix of classroom and

field or clinical experience. They give little attention to what is to be learned by teachers about teaching, learning and schools (Hawley, 1990, pages 209 and 230).

In an analysis of the relationship between cognitive instruction and the learning of teaching skills, Gliessman and Pugh (1991) stated that such skills can be taught. They went on to argue that individual cognitive mastery is predictive of skill use.

Project ECOSOM specifically focuses on what is to be learned by teachers about the processes of an interactions between teaching, learning, and schools, within the context of self-regulated learning.

Frame-of-Reference

A significant portion of the published literature centers on the educational construct of cognition and critical thinking (Vygotsky, 1978; Luria, 1976; Dewey, 1933, 1938; Ennis, 1989; Norris and Ennis, 1989; Paul, 1984; Lipman, 1988; Brandt, 1989; Costa, 1987; Resnick, 1989; Duck, 1985; Lindner and Harris, 1993). While each area (thinking, critical think, higher reasoning, and self-regulated learning) has special interests and terminology, each area focus on what one may refer to as a cognitive frame-of-reference. Lindner and Harris (1993), in attempting to develop an understanding of this 'frame-of-reference' construct, developed the following general definition:

> (1) The ability to monitor, regulate, evaluate, sustain, and strategically modify, when necessary, the learning process and (2) sensitivity to, and ability to exercise control over, contextual factors that affect learning outcomes.
>
> The basic components of self-regulated learning include: (a) epistemological beliefs, (b) motivational processes, (c) metacognitive processes, (d) learning strategies, (e) contextual sensitivity, and (f) environmental control and/or utilization. Self-regulated learners are possessed of a belief system that views knowledge as complex and evolving, rather than simple and fixed, and the knower as capable of self-modification. An individual is a self-regulated learner to the degree that she/he is able to effectively monitor and regulate (control) and sustain the learning process, apply a variety of appropriate and efficient strategies to learning problems encountered, maintain a sense of competence, (intrinsic) motivation and personal agency, accurately diagnose the character and demands of particular learning challenges, and effectively utilize and control environmental factors that have a bearing on learning outcomes.

This frame-of-reference, combined with an understanding of the basis for cognitive strategies understanding has led to the formulation of a model teacher preparation curriculum.

As WIU views its emerging teacher preparation program, it parallels the ideas of several theorists and researchers. For example, Bereiter and Scardemalia (1987) have argued that the linguistic and verbal reasoning abilities, literary standards and sophistication, and the moral values and precepts usually linked with elites are within the grasp of most students. Their composite model of teaching and learning, which they term intentional learning, asks teachers to assist students, on their own initiative, to activate prior knowledge, relate old knowledge to new in systematic and reflective ways, organize bits of information, reach conclusions and evaluate these conclusions before committing to them.

In a further exposition of their ideas, Bereiter and Scardemalia (1989), pointed out that many students and teachers view schooling as a "job" which requires they complete assignments or "little jobs" each day as opposed to a place where they learn and complete learning tasks. Instead, they argue, student and teacher should be viewed, indeed view themselves, as engaged in a joint and cooperative cognitive process. Four other elements are suggested by the authors as relevant:

(a) the need to teach relevant forms of meta-knowledge,
(b) the progressive shifting of responsibility for higher-level aspects of the instructional process to students,
(c) the modeling the of the setting of cognitive goals, and
(d) the need to engage in self-assessment of level of constructive effort.

Approaching the necessity for rethinking the school curriculum and teacher preparation from a slightly different perspective, Robert Ennis (1987), in his Taxonomy of Critical Thinking: Dispositions and Abilities, identified 12 groups of abilities and 14 dispositions which he suggests could form the basis of a school curriculum if teachers are appropriately accomplished critical thinkers and other supportive conditions are in place. Given their importance, and the need for the existence of such skills in teachers, critical thinking constructs and materials such as those developed by Ennis will form an important part of the curriculum for education students at WIU.

Richard Paul and the Foundation for Critical Thinking in Sonoma, California, also provide a base of information related to ideas and materials which are important to the teaching of critical thinking. Paul (1993) and his associates have referred to:

> The new student who expects to take responsibility for her own learning; who expects to think independently and to develop sound intellectual habits; who strives to work with care, precision and accuracy; who respects the power and resources of language; who seeks opportunities to read, write speak and listen critically; who approaches her classes as connected networks of ideas, skills and insights, who continually probes the relation between concept and experience; who does not blindly memorize masses of information; who seeks underlying principles and internalizes underlying concepts; who figures out and tests as she learns; who analyzes and monitors her own thought and reasoning; who recognizes that all deep learning requires some confusion, some mistakes, some frustration; who accepts fundamental responsibility for all learning and does not expect professors to somehow painlessly implant it in her head (p. 26).

A related perspective is reflected in Transactional Strategy Instruction framework of Pressley and associates (Anderson, 1992, 1993; El-Dinary, in press; Pressley, et. al., 1989, 1991, 1992a, 1992b). Much of the work in Transactional Strategy Instruction has focused on the teaching of reading. However, the underlying emphasis on problem-solving, critical reflection and self-regulated learning bear a strong resemblance to the strategic emphasis of Project ECOSOM. These include notions such as focusing on how to solve problems, providing models for thinking, teaching, open-ended questioning, asking thought-provoking questions, emphasizing student control of learning, collaborative learning and the proactive setting of learning goals.

While bearing a strong family resemblance to the perspectives just discussed, Project ECOSOM operates out of a framework termed self-regulated learning (Lindner and Harris, 1993) using an instructional strategy that has been identified as cognitive apprenticeship (Brown, Collins and Duguid, 1989; Collins, Brown and Newman, 1989). Self-regulated learners, according to Lindner and Harris (1992), are purposive and goal oriented (proactive rather than simply reactive), incorporating and applying a variety of strategic behaviors designed to optimize their academic performance. Self-regulated learners evidence the ability to monitor, regulate, evaluate, sustain, and strategically modify, when necessary, the learning process, along with sensitivity to, and ability to exercise control over, motivational and contextual factors that affect learning outcomes. Furthermore, self-regulated learners possess a belief system that views knowledge as complex and evolving, rather than simple and fixed, and the knower as capable of self-modification. In short, an individual is a self-regulated learner to the degree that she/he is able to effectively monitor and regulate (control) and sustain the learning process, apply a variety of appropriate and efficient strategies to learning problems encountered, maintain a sense of competence, (intrinsic) motivation and personal agency, accurately diagnose the character and demands of particular learning

challenges, and effectively utilize and control environmental factors that have a bearing on learning outcomes. The conceptual framework of self-regulated learning, thus, incorporates the many elements that leading theorists and researchers in the field have identified as aspects of the ideal learner. The question remains, however, how to educate in such a way that our system generates learners of the self-regulating type? Project ECOSOM is based on the belief that a cognitive apprenticeship framework offers the most viable route to such an end.

According to Collins, Brown and Newman (1989), learning environments that take the perspective of a cognitive apprenticeship can be characterized in terms of their content, preferred instructional methods, instructional sequence and sociology of education. In terms of content, it is recognized that domain specific knowledge and higher-order thinking skills do not function independently of one another. Therefore, the emphasis is on the acquisition of a solid knowledge base in one's domain of expertise in conjunction with the development of problem solving, metacognitive control, and strategic learning skills. The instructional technique viewed as most likely to facilitate the development of such skills involves a sequence of modeling, coaching, scaffolding and fading, articulation, reflection and exploration. Cognitive apprenticeship is, in other words, a form of socially mediated instruction wherein (a) to-be-learned skills are modeled by a more experienced "expert" [adult or peer], (b) made explicit by the "expert" through think-aloud demonstrations in the application and regulation of the component skills, and (c) over the course of learning the "novice" is induced to accept increasing responsibility for his/her performance of the target skill (Englert and Raphael, 1989).

Finally, as Rogoff (1990, p. 39) has noted, cognitive apprenticeship occurs when "active novices advance their skills and understanding through participation with more skilled partners in culturally organized activities." Project ECOSOM is fundamental based on the belief that the self-regulated learning perspective in combination with instruction that takes an apprenticeship orientation makes for a potent and workable approach to training the teacher of the future. Such a teacher will be one able to transmit this perspective to his/her own students in a social and academic context that produces resilient empowered learners, thinkers and problem solvers. Furthermore, the self-regulated learning and cognitive apprenticeship framework allows us to retain the basic core content of our course work, which is often required as a foundation for teacher preparation, while at the same time introducing a radical shift in how such knowledge is to be viewed and used.

In addition to the relatively tradition teaching mechanisms incorporated into Project ECOSOM, a movement toward the incorporation of interactive videodisk-based technology has been made. This incorporation is a direct outgrowth of the research presented by the Cognition and Technology Group at Vanderbilt University (The Cognition and Technology Group at Vanderbilt, 1990). The basic premise of what the Vanderbilt group refers to as "anchored instruction" is that learning is most natural and most viable when it is situated in realistic environments that permit

> "sustained exploration by students and teachers and enable them to understand the kinds of problems and opportunities that experts in various areas encounter and the knowledge that these experts use as tools" (p. 3).

Anchoring instruction in videodisk-based problem solving environments has several distinct advantages. First and foremost, it makes the "idea of transforming school instruction into apprenticeships more feasible" (p. 8). It is, in other words, more realistic to ground (anchor) problem solving based instruction in the simulated reality of a videodisk than to place classes full of students into authentic, real world conditions that require problem solving. Videodisk-based contexts also have the advantage of compressing what would take days, perhaps weeks and months, in the real world into minutes and hours in the classroom, as well as making it possible for students to revisit event segments and test their memories against actual aspects of events, something not generally possible in real life.

Preliminary findings show very positive results indicating that students so instructed are more likely to employ higher order thinking than comparison groups receiving more traditional forms of instruction.

Project ECOSOM

In an effort to specifically address teacher candidate characteristics directly, the Department of Educational Foundations at Western Illinois University (WIU) has developed a model pre-service curricular effort to respond to the problem of how to prepare teachers who can influence their environment rather than be a victim of it and who can effectively transmit that message to students they will teach. Entitled **Empowerment through Cognitive and Social Management** (ECOSOM), this effort focuses on addressing all parties involved in the public education process -- pre-service and in-service teachers, k-12 students, and the community/family at large. The overriding issue of this curricular change focuses on whether it is possible to design a teacher preparation program so that teachers who complete it will possess the knowledge, skills, techniques, and preparatory experiences to:

(a) work effectively in schools, social settings and communities which represent today's multi-agency intervention with low-income, single parent, violence riddled, economically devastated children/families; and

(b) effectively demonstrate the ability to motivate children to succeed and persist in an environment in which the classroom may be the only place where academic learning is applauded.

Project ECOSOM has, to-date, involved a fiscally-limited implementation/modification of the current core curriculum, consisting of EDFD 201 (Human Growth and Development), EDFD 301 (Learning), EDFD 302 (Multicultural and Social Foundations of Education), and EDFD 401 (Historical and Philosophical Foundations of Education). This core curriculum was selected as the means for programming evolution because it has always incorporated a strong field component which links theory to practice by providing opportunities to experience the interactions between students, pre- and in-service teachers, and the family/community at large, across a variety of academic disciplines. The current project implementation goals are two-fold:

1. To promote the notions of academic survival (resiliency) and achievement in spite of environmental challenges which traditionally result in failure, and to foster a personal inner strength to self-regulate learning for success in educational settings; and,

2. To institutionalize the proposed self-regulated learning approach to teacher preparation at WIU and provide a model for replication.

These goals should be realized, as a consequence of core curricula changes in programming and instruction that allow 'teachers-in-training' to develop an understanding of both their own and their students' academic, social, and environmental frame-of-reference. In addition to the conventional core curriculum content, components/information pertaining to resiliency, empowerment, self-regulation, team, collaborative learning, self- and alternative assessment, multicultural awareness, and social agency intervention have been developed for introduction. Components centering on self-identification and realization/actualization on the part of the teacher (thinker, researcher, and problem-solver) have been incorporated into this core curriculum by focusing on a platform of three principal foci:

1. Discovering One's Frame-of-Reference
    a. Self-analysis (both strengths and weaknesses)
    b. Learning styles
    c. Reward systems (intrinsic and extrinsic)
    d. Social influences (societal, cultural, peer, and environmental)
    e. Self-esteem and values
    f. Estimating and consolidating a knowledge base

2. Learning Techniques of Expanding One's Frame-of-reference
    a. Assessing stored knowledge as resources
    b. Leading codes of behavior applicable to new situations
    c. Learning new cultures
    d. Learning enduring issues
    e. Developing skills of deduction, analogies, critical thinking and problem-solving
    f. Learning communication patterns and productive information exchanges
    g. Learning self-evaluation techniques and survival skills (resiliency)

3. Developing Techniques to Expand Frame-of-reference for future needs
    a. Learning to learn (self-regulated learning, metacognition)
    b. Applying learning to interests rather than required assignments
    c. Career and on-going issues of self-development
    d. Placing self-evaluation in an on-going context related to long term goals

In addition to the conventional student, an effort is underway to develop in-service programming for the teacher already in the public education system, agency professionals involved in aiding the public school student, and parents of students enrolled in K-12 public school programming.

Project Flow/Components

Project ECOSOM flows from concept through completion by attending to the following components:

a. Every learner develops a frame-of-reference before he/she first attends school. Intellectual development begins in the social realm, moving to the individual realm where it is first internalized and personalized, and subsequently used to guide independent problem-solving.

b. The traditional family (or its substitute) serve as the foundation from which individuals come to understand themselves with respect to the social environment and their types of futures they might experience.

c. The teacher is a reflective thinker, interested in the life-long learning process, naturally inquisitive and capable of resolving environment challenges. Equally as important, the teacher is knowledgeable about cross-professional interventions impacting on learners, and sometimes serves as a facilitator or broker of such services to both the learner and the family.

d. Modern American society is culturally diverse. Such diversity must be recognized and should be emphasized as a positive force in the community-at-large, and more specifically in the learning environments (schools) within the community.

e. The learning environment (school) is an environment where learners stretch or expand their frame-of-references (generally defined as learning) with the assistance of some other individual (generally defined as a teacher or master).

f. All learners (including both the student and the teacher) must learn to become empowered through a process of self-regulation, which should include: resiliency, critical thinking, metacognition, inquisitiveness, and social/cultural awareness / understanding.

This model curriculum relies on the following change vehicles for preparing the WIU pre-service teacher of the future:

a. Course Work: Pre-service teachers enrolled in educational foundations course work (Ed.Fd. 301: Educational Psychology--Learning; Ed.Fd. 302: Multicultural and Social Foundations of Education; and Ed.Fd. 401: Historical and Philosophical Foundations of Education. In the process of completing the course work, the pre-service teachers are exposed to the traditional course content within the framework of the cognitive apprenticeship or self-regulated learning model. Course instruction relies on employing techniques which stimulate environmental/contextual awareness/understanding, inquisitiveness, critical thinking, metacognition, resiliency, self-actualization, and empowerment. The university faculty involved with content delivery model teaching strategies, facilitate content transfer, and utilize the strategies of exploration and inquisitiveness to deal with those options and approaches which lead to empowered, self-regulated learning.

b. Workshops: In addition to the regular course work preparation, workshops specific to Project ECOSOM topics/objectives are being developed for presentation to both pre-service and in-service teachers as an opportunity for additional information dissemination and experiences.

c. Technological Instruction: One cornerstone of Project ECOSOM focuses on the computer / technological literacy of the future teacher. This project is among other things concerned with the awareness of environmental/contextual circumstances and resources. In an effort to fully extend the range of possibilities for project participants, instructional delivery mechanisms extend beyond the traditional scope of chalkboards, lecture and overheads. Current media products, computer-assisted instruction, and access to desirable/necessary media options have been incorporated into the classroom and workshop deliveries. While the primary functions of such computer/technology incorporation is to assist in the self-regulated learning process, presentational materials (simulated field experiences, simulated learning environments, and expert systems) serve to stimulate problem resolution.

d. Participant Action Research Experiences: In addition to content delivery via traditional and nontraditional instruction (see change vehicles (a), (b), and (c)), all pre-service and in-service teachers will be involved in action research opportunities. This involvement serves to foster the notion of teacher as inquisitive researcher in a non-threatening environment (specific to the interests or environmental circumstances of the individual); and to provide training which will lead to participating students internal capability for alternative assessment or programmatic evaluation.

The core of the ECOSOM paradigm is the self-regulated learning model postulated by Lindner (1993). This model consists of six components -- Epistemological Beliefs, Motivation, Metacognition, Learning Strategies, Contextual Sensitivity, and Environmental Utilization/Control -- each of which feeds into the other components and is dependent upon the other components (continuous feedback loops). Project ECOSOM uses a cognitive apprenticeship delivery mechanism to facilitate the development of self-regulation among the learner population.

Rather than attempt to effect an immediate and complete change in the way that WIU prepares pre-service and in-service teachers to impact on learners enrolled in the general K-6 environment, the modified curriculum was designed to effect this teacher preparation change in a staged, three year manner. In each of the three years, the self-regulating assessment process focuses on separate clusters of tasks:

YEAR 1: Major emphasis is placed on developing an understanding of participants (K-6 students, pre-service and in-service teachers) initial frame-of-reference. On the basis of this understanding, Ed.Fd. 301, Ed.Fd. 302, Ed.Fd. 401, and workshops are further developed and refined. Pre-service (and to some limited extent in-service teachers) are afforded a basic understanding of the self-regulated learning components, in relation to the identified frames-of-reference.

YEAR 2: Participants should, at this stage of the project, have both an understanding of initial frames-of-reference and a basic understanding of the nature and options of each of the self-regulated learning components. At this time, emphasis is placed on refining these basic competencies with respect to the needs of the diverse K-6 student populations. In addition, all teacher populations should have an understanding for the need of action research as well as have a more refined perspective of the context of the learner environment.

YEAR 3: Participants should, at this stage, have both a more refined understanding of initial and current frames-of-reference and a more developed understanding of the nature and options of each of the self-regulated learning components. At this time, emphasis is placed on polishing these competencies with respect to the needs of the K-6 student populations. In addition, all teacher populations should have developed an inherent desire to function as a self-regulated learner and to continue the use of action research as a tool with which they can directly address the needs of the learner environment and population.

Project ECOSOM Consequences

As one reads the literature, it is difficult to find any number beyond five or six universities which are actually committed to a higher order thinking skills curriculum for the teacher preparation program (Martin 1989). And even though there are conferences and meetings where representatives agree to the need for their institution to do something, time drags on while change waits (C. Blaine Carpenter, et. al., 1987). Programs typically are represented by bits and pieces. It is Western Illinois University's position that the results of the WIU project will find a large and interested audience. Beyond the specific group interested in adopting or adapting a complete program, there are larger numbers of people interested in the various components of the project.

Dimensions of Self-Regulated Learning
(Lindner & Harris, 1992)

Epistemological Beliefs	Perry (1968) Dualism Relativism Commitment	Schommer (1991) Simple / Certain Knowledge, Omniscient Authority, Innate Ability, Quick Learning	Personal, largely unquestioned, frame-of-reference
Metacognition	Flavell (1971)) Regulation of cognition Metacognitive experiences Knowledge about cognition	Planning, monitoring and evaluation of cognitive processing	Second order, self-reflective thinking
Learning Strategies	Derry (1989) Tactics for learning declarative and procedural knowledge Tactics for maintaining motivation	Comprehensive plans for effective learning and problem solving	Attention focusing Schema building Idea elaboration Pattern learning Reflective practice
Motivation	Dweck (1989)) Goal value and/or interest Goal orientation / accessibility Expectation o success	Bandura (1982)) Self-efficacy	Goal oriented effort or striving
Contextual Sensitivity	Lindner (1992)) Cue sensitivity Task recognition Affordance recognition	Degree of perceptiveness or insight with respect to contextual elements	Tacit recognition of information specific to problem resolution
Environmental Utilization / Control	Instrumental help seeking Staging Time management Resource use	Effective management and utilization of resources external to self, in the pursuit of learning goals	

Characteristics of Self-Regulated Learners
(Lindner & Harris, 1992)

	Formal Definition	Layman's Definition	Example	Related Terms
Epistemological Beliefs	Relatively enduring, unconscious beliefs about the nature of knowledge and the process of knowing	Taken-for-granted, internalized assumptions about the nature and origin of knowledge that shape one's interpretation of one's experiences and goals	The belief that knowledge is simple and that truths are absolute and derived from those who know	Personal frame-of-reference, Personal paradigm
Motivation	Goal-oriented striving that is a complex function of goal value, goal accessibility, perceived likelihood of success and reflecting one's sense of competence	Level of confidence in oneself as a learner which, combined with one's values and interests, determines the goals one sets in a learning situation	Believing that one is not good at math, therefore avoiding situations where this perceived weakness is likely to be exposed	Self-efficacy, locus of control, academic self-esteem, attribution, goal orientation, intrinsic-extrinsic motivation
Metacognition	Knowledge about cognition and awareness / conscious regulation of one's thinking and learning; the executive engine of cognition	Accumulated, articulated understanding of oneself as a thinking being with regard to the variable demands of learning tasks and materials	Taking periodic self-assessments when engaged in a learning task with regard to progress and level of comprehension	Self-reflective thinker, proactive learner, self-controlling and initiating, self-directing, critical problem-solver
Learning Strategies	Refers both to operative knowledge of specific learning tactics and the ability to combine various tactics into an effective learning plan	The specific tactics we have learned, discovered or invented that are combined and used to produce effective learning outcomes	Organizing and transforming information in order to increase the likelihood we will retain and later retrieve from memory	Study skills, mnemonics, elaborative encoding, schema building
Contextual Sensitivity	Ability to "read" learning contexts for what they specify regarding the demands of a particular problem and what it affords in the way of problem resolution	Our ability to rapidly size-up a earning situation in order to generate an appropriate and effective response	Recognizing that a particular situation is an instance of a problem type	Affordance recognition, perceptive
Environmental Utilization	Utilization and management of circumstances and resources external to the self in the pursuit of learning related goals	Ability to effectively use existing resources (people, materials, and settings) to effect successful learning outcomes	Purposely associating with students that have a strong academic orientation in order to increase one's own chance of academic success	Time management, self-rewarding, instrumental help-seeking

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